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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,956	07/07/2003	Kazuo Harada	239628US0DIV	4759

22850 7590 02/17/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
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EXAMINER

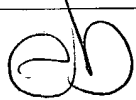
NAKARANI, DHIRAJLAL S

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/612,956	Applicant(s) HARADA ET AL. 	
	Examiner D. S. Nakarani	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-6,9 and 11-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-6,9 and 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 08/875,496.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>July '03 & Oct '03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3-6, 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al (US Patent 5, 725, 958) in view of Jones (U.S Patent 3, 442,686).

Matsuda et al disclose a gas barrier film comprising a plastic film coated with a gas barrier film comprising a mixture of 35wt% aluminum oxide and 65wt% silicon oxide. The gas barrier film has thickness of 800 angstrom (Example 7, sample 1 in Table 5B). Matsuda et al. also suggest thin film made of silicon oxide, aluminum oxide, titanium oxide, zirconium oxide, titanium oxide, zinc oxide etc. and of two or more said oxides (col. 3, lines 37-52). The coating method such as sputtering is also disclosed (col. 7, line 7). Disclosed sputtering method, physical vapor deposition method, chemical vapor deposition method etc. are dry methods. Polymers for the plastic film such as polyethylene, polypropylene, polyvinyl chloride, polyethylene terephthalate, polyamide, etc. are disclosed (col. 3, lines 15-27). Masuda et al's gas barrier film composition comprising e.g. 35 wt% Al_2O_3 and 65wt% SiO_2 has 61 atomic % Si and 39 atomic % Al calculated as follows:

Molecular weight of SiO_2 = 60.09.

Therefore 65wt% gives $65/60.09=1.08$ mole. Thus 1.08 silicon atoms.

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Molecular weight of $\text{Al}_2\text{O}_3 = 102$

Therefore 35 wt% give $35/102 = 0.343$ mole. Each molecule of Al_2O_3 has two aluminum atoms therefore $0.343 \times 2 = 0.686$ aluminum atoms.

Silicon atom $1.08 +$ aluminum atoms $0.686 = 1.77$ atoms of metal.

Therefore $(1.08/1.77) \times 100 = 61$ atomic % silicon and $(0.686/1.77) \times 100 = 39$ atomic % aluminum.

Matsuda et al fail to disclose a fluorine-containing resin and to show working example having barrier layer made of oxides of Si and Sn, oxides of Si and Ti and oxides of Si, Sn and Ti. However, Matsuda et al suggest a mixture of two or more oxide of silicon, titanium, aluminum, zirconium, tin etc.

Jones discloses a film such as polyethylene terephthalate, polypropylene, polyamide, polymer of a hexafluoropropylene, polytetrafluoroethylene, polyvinyl fluoride etc (col. 4, lines 19-26) coated with barrier coating made of silicon oxide, aluminum oxide, zirconium oxide, alundum (Al_2O_3 with SiO_2 binder) etc at thickness of 0.02 microns (i.e. 20 to 2000 nanometers) (col. 3, lines 17-29, col. 4 lines 14-45, col. 6, lines 28-46 and col. 7, lines 44-70. Jones does not disclose claimed tetrafluoroethylene/ethylene copolymer.

Therefore it would have been obvious to a person of ordinary skill in the art at the time of this invention made to utilize disclosure of Jones in the invention of Matsuda et al. to coat any fluorine containing polymer such as disclosed by Jones including tetrafluoroethylene/ethylene copolymer with metal oxide layer to make fluorine containing polymer film gas impermeable.

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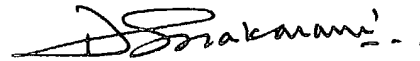
3. Receipt of Information Disclosure Statements filed July 7, 2003 and October 6, 2003 is acknowledged and has been made of record.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. S. Nakarani whose telephone number is (571) 272-1512. The examiner can normally be reached on Tuesday-Friday from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau, can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.S. Nakarani/af
February 9, 2004


D. S. NAKARANI
PRIMARY EXAMINER